MAY/JUNE 1990 ISSUE # 30

VZ 200/300

HUNTER VALLEY VZ JOURNAL

HAPPY FOURTH BIRTHDAY

PRODUCED BI-MONTHLY BY H.V.VZ.U.G.
A NON PROFIT ORGANIZATION

* * EDITOR'S COMMENTS * *

THE CIRCUIT DIAGRAMS WERE DONE WITH A CAD (COMPUTER AIDED DESIGN) PROGRAM ON AN IBM PC COMPATIBLE COMPUTER. THE TEXT WAS COMPILED USING DISK WORD PROCESSOR PATCH 3.3 AND HI-RES SCREEN DUMPS WITH LARRY TAYLOR'S PRINTER PATCH V1.4.

* * 7TH NEWCASTLE COMPUTER SHOW * *

VENUE: THE HUNTER BUILDING AT THE UNIVERSITY OF NEWCASTLE RANKIN DRIVE SHORTLAND - PHONE (049) 687 289 (049) 687 264

THURSDAY SEPTEMBER 20 - 12 PM - 9 PM
FRIDAY SEPTEMBER 21 - 9 AM - 5 PM
SATURDAY SEPTEMBER 22 - 9 AM - 5 PM

THE HUNTER VALLEY VZ USERS' GROUP HAS BEEN INVITED TO PARTICIPITATE AGAIN IN ABOVE SHOW WHICH WILL BE FOR THE FOURTH YEAR IN A ROW FOR US. IT IS A LOT OF HARD WORK FOR ME BUT WELL WORTH THE EFFORT. THE AIM IS TO ATTRACT NEW MEMBERS AND TO LET VZ USERS KNOW THERE'S STILL SUPPORT AROUND FOR THE VZ.

ALONG WITH SOME PREVIOUSLY SEEN DEMOS WE'LL HAVE SOME NEW DEMONSTRATION PROGRAMS AND NEW HARDWARE MODS TO SHOW LIKE:

PETER & ANDY HICKMAN VZ 200/300 RS-232 SERIAL PORT.
GARY BULLEY VZ MOUSE AND ANALOG JOYSTICK.
VZ SUPER GRAPHICS (UP TO 256 X 192 PIXEL RESOLUTION).
PETER JONES VERSION OF THE VZ SPEECH SYNTHESISER.
VZ HI-RES MUSIC BOX - IT WILL BLOW YOUR EARS AND EYES AWAY.
BOTH NEW AND OLD HI & LO-RES DEMOS AS WELL.

HOPE TO SEE YOU THERE – DON'T MISS IT

SOUTHERN VISITOR: HARRY HUGGINS OF VZ DOWN UNDER FAME HAS HEARD OF OUR PREMIER STATE AND DECIDED TO COME AND SEE FOR HIMSELF THE MARVELS THIS STATE HAS TO OFFER AND I WOULD SAY HE WOULD BE LOATH TO RETURN TO VICTORIA AFTER SEEING THE WONDERS OF NSW. HE HOPES TO BE HERE IN TIME FOR THE COMPUTER SHOW.

CORRECTION: ISSUE # 29 PAGE 2 PETER HICKMAN FAST M/C EDITOR/ASSEMBLER WAS WRONG, IT SHOULD HAVE READ FAST M/C DISASSEMBLER. THE AD ON PAGE 18 WAS CORRECT EXCEPT PETER HAS A NEW POST CODE NOW, SEE PAGE 18. MY APOLOGIES TO PETER.

FOR PRIVATE SALE . . .

1 OFF VZ200 & AQUARIUS DATASSETTE - $50.00 PLUS $5.00 POST AND PACKING.
1 OFF VZ200, VZ DATASSETTE, VZ200 16K MEMORY EXPANSION & PRINTER INTERFACE - $100.00 PLUS $15.00 POST AND PACKING.

ON BEHALF OF ALEX TAYLOR CONTACT:
JOE LEON 22 DRURY STREET WALLSEND 2287 (049) 51 2756

FOR PRIVATE SALE . . .

1 OFF ORIGINAL VZ 300 GAMES DISK # 4 - $15.00
(INCLUDES DUEL, VZ CHESS, HAMBURGER SAM AND LUNAR LANDER)

1 OFF DOT MATRIX PRINTER PATCH V1.4 (DISK) BY LARRY TAYLOR - $8.00
(ALLOWS HI-RES SCREEN DUMPS, GRAPHICS AND INVERSE PRINTOUT)

CONTACT JOE LEON 22 DRURY STREET WALLSEND 2287 (049) 51 2756

BREAK (-): TO ABORT A DOS FUNCTION CTRL + BREAK KEY WILL NOT WORK. USE (-) MINUS KEY ON ITS OWN, BUT BE AWARE THERE ARE DANGERS INVOLVED. DO NOT USE (-) KEY TO ABORT A SAVE, BSAVE OR ERASE FUNCTION AS YOU MOST LIKELY END UP LOSING YOUR PROGRAM. YOU HAVE BEEN WARNED!

RESET DANGERS: IF YOU RESET YOUR VZ VIA AN ON/OFF SWITCH OR RESET BUTTON THEN MAKE SURE DRIVE DOOR IS OPEN OTHERWISE THE DIRERCTORY TRACK COULD BE WIPED OUT MAKING YOUR PROGRAMS INACCESSABLE. GET IN THE HABIT OF OPENING DRIVE DOOR AFTER EVERY DISK ACCESS TO AVOID THE RISK AND MAKE BACKUPS OF YOUR WORK AS YOU GO.

DISKS: ONLY THE BOTTOM SIDE OF THE DISK IS USED FOR DATA STORAGE, NOT THE TOP AS MANY PERSONS BELIEVE. BY NOTCHING OTHER SIDE OF DISK YOU CAN STORE DATA THERE AS WELL SO DOUBLING YOUR STORAGE SPACE AND HALVING COSTS. I USE OTHER SIDE FOR BACKUPS SO THAT STORED DATA IS NOT ALL LOST IN CASE OF MISHAPS.

USING DOS COMMANDS IN A PROGRAM:
SOME BASIC CONVENTIONS WILL NOT WORK LIKE IN THE EXAMPLE BELOW, EG:

```
1000 IF A$="D" THEN DIR:STATUS
1000 IF A$="D" THEN:DIR:STATUS
```

THE FIRST LINE WILL PRODUCE AN ERROR. IT IS CORRECT FOR BASIC BUT NOT FOR DOS AS IT REQUIRES A (:) COLON AFTER THE THEN AS SHOWN IN THE SECOND LINE AS DO ALL DOS COMMANDS.

```
1010 IF A$="S" THEN:SAVE Y$
```

DOS CANNOT USE VARIABLES FOR FILENAMES BUT CAN USE NON VARIABLE FORMAT AS IN THE TWO EXAMPLES BELOW, EG:

```
1020 IF A$="S" THEN:BSAVE"SCREEN",7000,77FF
1030 IF A$="R" THEN:REN"SCREEN","PICTURE"
```

IN BOTH ABOVE LINES THE FILENAME MUST BE ENTERED INTO EACH LINE MANUALLY AND YOU MUST BREAK TO CHANGE THEM AND LOSE ALL VARIABLES IN THE PROCESS. NOTE THE COLONS AFTER THE THEN STATEMENTS. NEXT ISSUE I'LL EXPLAIN HOW TO GET AROUND THIS PROBLEM WHICH IS A FAIRLY SIMPLE.

LDIR:LSTATUS: THE VZ DOS DOES NOT HAVE A COMMAND FOR PRINTING OUT THE DIR OR STATUS FUNCTIONS BUT AS USUAL THERE'S A WAY AROUND IT, EG:

```
POKE30876,1:DIR:STATUS
```

SIMPLE ISN'T. IT WILL PRINT OUT ONLY ONCE AFTER WHICH YOU HAVE TO USE THE POKE AGAIN. MAKE SURE YOUR PRINTER IS ON LINE (READY) FOR PRINTING FIRST.

SUMMARY: THE VZ DOS LIKE THAT FOR MANY OTHER COMPUTERS CAN ONLY BENIFIT FROM IMPROVEMENTS AND THANKFULLY THERE ARE SOME VERY GOOD UTILITIES AROUND FOR IT. IF YOU HAVE A LOOK AT PAGE 20 OF THIS ISSUE YOU'LL SEE A COUPLE EXELLENT DOS UTILITIES WRITTEN BY DAVE MITCHELL WHICH I USE ALL THE TIME.

IF YOU HAVE 2K OF BATTERY BACKED RAM INSTALLED AT 6000H JUST ABOVE THE DOS ROM THEN DAVE HAS VERSIONS FOR IT TOO. WHAT IT MEANS IS THAT THE DOS UTILITY IS AVAILABLE AT POWER UP JUST LIKE YOUR NORMAL DOS.

```
10 '*************************************************************
20 '***                                                       ***
30 '***                   T H R O W - U P                     ***
40 '***  PROGRAM III OF III TO LOAD 24 HI-RES SCREENS INTO    ***
50 '***  64K MEMORY EXPANSION  ******  BY BOB KITCH - 6/88    ***
60 '***                                                       ***
70 '*************************************************************
80 '
3399 '***SEE IF MEMORY BLOCK LOAD SELECTED.
3400 A$=CHR$(PEEK(30791)):IF A$="2"THEN GOTO 7000
3498 '
3499 '***PUT UP INTRO MESSAGE.
3500 GOSUB 5020
3510 PRINT"NOW IT'S TIME TO HAVE A GOOD          ***THROW-UP***"
3512 SOUND 8,5;0,3;8,5;0,3;8,5
3515 PRINT:PRINT"FOUR OPTIONS EXIST":PRINT
3520 PRINT" <0>  FANCY SCREEN MOVE"
3525 PRINT" <1>  PLAIN SCREEN MOVE"
3530 PRINT" <2>  MEMORY BLOCK SAVE"
3535 PRINT" <3>  MEMORY BLOCK LOAD"
3540 PRINT:INPUT"  INDICATE OPTION";A$
3545 IF A$="2" THEN GOTO 6000
3550 IF A$="3" THEN GOTO 7000
3555 IF (A$<>"1") AND (A$<>"0") THEN GOTO 3500
3560 GOSUB 5020
3565 PRINT"FOR A <PICTURE SHOW> DELAY       SELECT 10000 <24 SEC>
3570 PRINT"FOR AN ANIMATION DELAY           SELECT 100 <0.25 SEC>
3575 PRINT:INPUT"DELAY";D
3580 IF D<0 THEN GOTO 3500
3590 IF A$="0" THEN GOTO 4000
3598 '
3599 '***SET UP M/L ROUTINE FOR PAGING.
3600 POKE -16719,112                  :'***MSB OF DEST TO 70H.
3610 MS%=-16722                       :'***MSB OF SOURCE PG. 0BEAEH.
3620 POKE 30862,171:POKE 30863,190:'***ENSURE USR VECTOR SET.
3698 '
3699 '***MAIN PLAIN DISPLAY ROUTINE.
3700 MODE(1)
3710 FOR I%=1 TO 3
3720    OUT 127,I%
3730    FOR J%=192 TO 255 STEP 8
3740       POKE MS%,J%
3750       K%=USR(0)
3760       FOR K%=0 TO D
3770       NEXT K%
3780    NEXT J%
3790 NEXT I%
3800 GOTO 3710
3998 '
3999 '***MAIN FANCY DISPLAY ROUTINE.
4000 MODE(1):POKE 30863,188              :'***MSB 0BCH.
4010 FOR I%=1 TO 3
4020    OUT 127,I%
4030    FOR J%=3 TO 26 STEP 3
4040       POKE 30862,J%
4050       K%=USR(0)
4060       FOR K%=0 TO D
4070       NEXT K%
4080    NEXT J%
4090 NEXT I%
4100 GOTO 4010
```

```
4998 '
4999 '***SUBROUTINE FOR NEW SCREEN.
5000 PRINT@480,"[illegible]";
5010 A$=INKEY$:A$=INKEY$:IF A$="" THEN GOTO 5010
5020 CLS:PRINT@12,"[illegible]":PRINT:PRINT:RETURN
5997 '
5999 '***MEMORY BLOCK SAVE ROUTINE.
6000 CLS:PRINT@7,"MEMORY BLOCK SAVE"
6010 PRINT@64,"PUT IN NEW INITIALIZED DISK"
6020 INPUT"PRESS ANY KEY TO CONTINUE";A$
6030 PRINT@128,"SAVING BLOCK 1"
6040 OUT 127,1:BSAVE"BLOCK1",C000,FFFE
6050 PRINT@192,"SAVING BLOCK 2"
6060 OUT 127,2:BSAVE"BLOCK2",C000,FFFE
6070 PRINT@256,"SAVING BLOCK 3"
6080 OUT 127,3:BSAVE"BLOCK3",C000,FFFE
6090 GOTO 3500
6997 '
6999 '***MEMORY BLOCK LOAD ROUTINE.
7000 CLS:PRINT@7,"MEMORY BLOCK LOAD":POKE 30791,0
7010 PRINT@64,"PUT IN DISK CONTAINING 3 MEM.   BLOCKS"
7020 INPUT"PRESS ANY KEY TO CONTINUE";A$
7030 PRINT@192,"LOADING BLOCK 1"
7040 OUT 127,1:BLOAD"BLOCK1"
7050 PRINT@256,"LOADING BLOCK 2"
7060 OUT 127,2:BLOAD"BLOCK2"
7070 PRINT@320,"LOADING BLOCK 3"
7080 OUT 127,3:BLOAD"BLOCK3"
7090 GOTO 3500
9998 '
9999 '***UPDATE DISK FILE.
10000 ERA"THROWUP":SAVE"THROWUP"
20000 END
```

LIVEN-UP ANIM. & GRAPH. PROGRAMS

SETUP - BASIC LISTING - ISSUE # 27 - PAGES 8-9
THIS PROGRAM MUST BE RUN FIRST WHICH IN TURN RUNS STARTUP.

STARTUP - ASSEMBLER LISTING - ISSUE # 30 - PAGE 7
THIS M/C PROGRAM LOWERS TOM TO BFFFH AND RELOCATES DOS VECTOR BELOW IT AND THEN RUNS LOADUP.

LOADUP - BASIC LISTING - ISSUE # 28 - PAGES 13-14

A CHECK FOR 64K MEMORY EXPANSION IS MADE AND AN OPTION TO LOAD 24 HI-RES SCREENS IN THE ORDER OF YOUR OWN CHOOSING. WHEN DONE LOADUP LOADS MOVEUP INTO MEMORY AND THE RUNS THROWUP.

MOVEUP - ASSEMBLER LISTING - ISSUE # 29 - PAGES 6-10
THIS M/C PROGRAM DOES ALL THE FANCY SCREEN MOVES YOU SEE IN THE FINAL RESULT.

THROWUP - BASIC LISTING - ISSUE # 30 - PAGES 5-6
THIS IS THE CONTROL PROGRAM FOR MOVEUP AND AN OPTION TO BSAVE/BLOAD 3 X 16K SCREEN BANKS TO/FROM DISK IS AVAILABLE.

NOTE-ERROR: ISSUE # 28 PAGE 14 HEADING SHOULD HAVE READ: LOAD-UP CONTINUED NOT THROW-UP CONTINUED

START UP BY BOB KITCH


```
;
;SOURCE:START
;ORIGIN:7200H (VRAM).
;OBJECT:STARTUP
;
;THIS ROUTINE:-
;1. LOWERS TOM TO "TOP"
;2. RESETS POINTERS BY A NEW
;3. RELOCATES DOS VECTOR TO
;   BELOW "TOP".
;4. RUNS "FNAM" (T:FILE).
;
;
;
TOP   EQU  0BFFFH
;VALUE FOR TOM.
CLS   EQU  01C9H
;CLEAR SCREEN.
NEW   EQU  1B4DH
;NEW ENTRY POINT.
TOM   EQU  78B1H
;TOM POINTER.
JUMP EQU  0C3H
;OPCODE FOR JUMP.
TURN EQU  0C9H
;OPCODE FOR RETURN.
RDOS EQU  4004H
;ENTRY POINT TO RESET DOS
;VECTOR.
PWON EQU  4008H
;ENTRY POINT FOR DISK POWER
;ON.
READ EQU  45DBH
;ENTRY POINT TO READ FILNAM.
VEC2 EQU  79ACH
;VECTOR CALLED FROM 1A1CH.
;
;
;
      CALL CLS
      LD   HL,TOP
      LD   (TOM),HL
      LD   HL,ENT
      LD   (VEC2+1),HL
      LD   A,JUMP
      LD   (VEC2),A
      JP   RDOS
;
;
ENT   POP  HL
      LD   A,TURN
      LD   (VEC2),A
      EI
      CALL NEW
      CALL PWON
      DI
      LD   HL,FNAM
      JP   READ
FNAM EQU  $
*"LOADUP":*
END   EQU  $
```

LIVEN-UP ANIM. & GRAPH'S SUMMARY

NEWCASTLE 6TH COMPUTER SHOW:

NOVOCASTRIANS WILL BE ABLE TO SEE BOB KITCH'S FANCY HI-RES SCREEN MOVES WHERE IT WILL BE FEATURED AMONG OTHERS.

OPTIONS:

ALTHOUGH THE SUITE OF PROGRAMS WAS ORIGINALLY DESIGNED FOR THE 64K RAM PACK THE PROGRAMS CAN BE MODIFIED FOR OTHER MEMORY SIZES.

VZ 200/300+34K:

IN LOADUP JUST LOAD 8 SCREENS AND IN THROWUP ONLY ONE BANK AT A TIME. DISABLE THE BANK CHECKING AND SWITCHING ROUTINES IN ABOVE PROGRAMS WHICH IS FAIRLY SIMPLE.

VZ 300+16K:

ALL PROGRAMS HAVE TO BE MODIFIED WITH TOM LOWERED BY 2K AND OTHER MODS AS WELL. BOB INFORMS ME IT SHOULD TAKE ABOUT 30 MINUTES.

FOR SALE:

FOR THOSE PERSONS WHO DO NOT WISH OR HAVEN'T THE TIME TO ENTER OR HAVEN'T THE ABILITY TO MODIFY THE PROGRAMS THEMSELVES THEY CAN GET THE SUITE OF PROGRAMS FROM:

BOB KITCH 7 EURELLA STREET KENMORE QLND 4069 (07) 378 3745

VZ 300+16K RAM PACK VERSION - $20.00 - POSTAGE INCLUDED.
VZ 200/300+64K RAM PACK VERSION - $20.00 - POSTAGE INCLUDED.

DISK TRACK MAP EXPLAINED

BY PETER HICKMAN

THE TRACK MAP OF YOUR DISK IS EXTENSIVELY USED BY THE SAVE, LOAD, DIR, STATUS AND DCOPY COMMANDS. IT KEEPS AN INDEX OF THE USED TRACKS AND SECTORS ON YOUR DISK. IT IS LOCATED ON SECTOR 0FH (15), TRACK ZERO. YOU NEED SOME UNDERSTANDING OF HEXADECIMAL TO FOLLOW THE LAYOUT OF THE TRACK MAP. ONE BIT OF A BYTE IS SET FOR EACH SECTOR THAT HAS BEEN USED. THE TOTAL NUMBER OF SECTORS PER TRACK IS 16. EACH BYTE CONTAINS 8 BITS. THEREFORE 2 BYTES ARE NEEDED TO DESCRIBE THE STATUS OF ONE TRACK.

THE DISK HAS 39 USABLE TRACKS, SO 78 BYTES ARE USED FOR THE ENTIRE TRACKMAP. THE TRACKS USED ARE NUMBERED FROM 1 TO 39, BUT ONLY THE SECTORS ARE SHOWN IN THE TRACKMAP. THE TRACKMAP IS COPIED INTO MEMORY EACH TIME THE DISK IS READ. THE MAP ADDRESS IS LOCATED AT IY + 34H, OR 53 BYTES ABOVE YOUR TOP OF MEMORY ADDRESS.

BELOW IS A LIST SHOWING HOW THE NUMBER OF SECTORS USED IS DESCRIBED ON THE TRACKMAP. THE SECTORS ARE USED IN SEQUENTIAL ORDER AS FOLLOWS:-

00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D, 0E, 0F

SECTORS USED *	BINARY	* HEX
00	00000001 00000000	0100
00-01	00000011 00000000	0300
00-02	00000111 00000000	0700
00-03	00001111 00000000	0F00
00-04	00011111 00000000	1F00
00-05	00111111 00000000	3F00
00-06	01111111 00000000	7F00
00-07	11111111 00000000	FF00
00-08	11111111 00000001	FF01
00-09	11111111 00000011	FF03
00-0A	11111111 00000111	FF07
00-0B	11111111 00001111	FF0F
00-0C	11111111 00011111	FF1F
00-0D	11111111 00111111	FF3F
00-0E	11111111 01111111	FF7F
00-0F	11111111 11111111	FFFF

THUS WHEN ALL SECTORS ARE USED ON A TRACK, THIS IS REPRESENTED AS FFFFH IN THE TRACKMAP. IF ONE SECTOR IS USED, THIS WILL BE SECTOR NUMBER 00, AND IT WILL BE REPRESENTED AS 0100H IN THE TRACKMAP.

IN THE COURSE OF NORMAL USE OF A DISK, YOU WILL ONLY SEE THE HEX NUMBERS 1,3,7,F IN THE TRACKMAP. IF ANY OTHER NUMBERS APPEAR, THEN THIS IS DUE TO THE ERASING OF SOME SECTORS.

E.G. 00000010 00000000 BINARY (0200H) REPRESENTS A TRACK IN WHICH ONLY THE SECTOR WHICH IS INDEXED IN THE DIRECTORY IS SECTOR NUMBER 1 (THE SECOND SECTOR ON THE TRACK).

WITH THE UNDERSTANDING OF THE TRACKMAP FIRMLY IN YOUR GRASP, YOU CAN NOW GO ON TO UNDERSTAND THE WAY IN WHICH DATA IS SAVED IN THE DIRECTORY. AS EACH SECTOR IS USED, THE TRACKMAP IS AUTOMATICALLY UPDATED. YOU RISK LOSING "TRACK" OF YOUR FILES IF YOU INTERFERE WITH THE TRACKMAP. BE CAREFUL.

A TYPICAL SECTOR 0FH (TRACK 1), ON AN ALMOST FULLY USED DISK, WOULD LOOK LIKE THIS (WHEN VIEWED WITH A SECTOR EDITOR):-

```
FFFFFFFF FFFFFFFF
FFFFFFFF FFFFFFFF
FFFFFFFF FFFFFFFF
FFFFFFFF FFFFFFFF
FFFFFFFF FFFFFFFF
FFFFFFFF FFFFFFFF
FFFFFFFF FFFFFFFF
FFFFFFFF FFFFFFFF
FFFFFFFF FFFFFFFF
FFFFFFFF 7F000000
00000000 00000000
00000000 00000000
00000000 00000000
00000000 00000000
00000000 00000000
00000000 00000000
```

AS YOU CAN SEE, A LOT OF SPACE IS LEFT UNUSED IN THIS SECTOR OF THE DISK. THE LAST ENTRY IN THE TRACKMAP ABOVE IS 7F00. THIS MEANS THAT TRACK 39 SECTORS 00-06 HAVE BEEN USED. THE SECTORS 07-0F (9 SECTORS) ARE FREE IN TRACK 39. IF YOU LOOKED AT THIS DISK WITH THE STATUS COMMAND, YOU WOULD SEE:-

9 RECORDS 1.125K BYTES FREE

THIS INFORMATION IS OBTAINED FROM THETRACKMAP AND CONVERTED INTO USEFUL DATA FOR YOU. THE TOTAL NUMBER OF SECTORS PER DISK IS 39 TRACKS OF 16 SECTORS = 624 RECORDS. EACH SECTOR HOLDS 128 BYTES (0.125K). THE AMOUNT OF DATA THAT CAN BE STORED ON A DISK IS 128 TIMES 624 = 79872 BYTES. DIVIDE THIS BY 1024 AND YOU GET 78K BYTES.

8 BIT INPUT PORT BY GARY BULLEY . . .

WHILE WORKING ON MY LATEST PROJECT FOR THE VZ THE NEED AROSE FOR AN 8 BIT DATA ENTRY PORT. AFTER STUDYING THE CIRCUIT DIAGRAM OF THE VZ PRINTER INTERFACE I FOUND THAT BY ADDING ONE MORE IC AND AN ADDITIONAL INPUT SOCKET IT COULD EASILY BE MODIFIED TO DO THE JOB.

THE MODIFICATION CONSISTS BASICALLY OF MOUNTING A 20 PIN IC ON A SMALL PIECE OF VERO BOARD TO WHICH IS ATTACHED 11 FLYING LEADS WHICH IN TURN CONNECT TO A 15D TYPE SOCKET MOUNTED ON THE END OF THE PRINTER INTERFACE CASE. ADDRESS DECODING IS DONE BY USING THE EXISTING HARDWARE OF THE PRINTER INTERFACE MODULE AND THE INPUT PORT IS SELECTED BY READING INPUT PORT 1.

CONSTRUCTION:

START BY REMOVING THE 4 SCREWS THAT HOLD THE INTERFACE MODULE TOGETHER. CAREFULLY REMOVE THE TOP COVER WHICH WILL EXPOSE THE COPPER SIDE OF THE CIRCUIT BOARD. ON THE FLAT END OF THE COVER AND WELL TOWARDS THE TOP, SO AS TO CLEAR THE CIRCUIT BOARD, CUT OUT A HOLE TO FIT A 15 PIN 'D' SOCKET. THE SOCKET IS MOUNTED ON THE INSIDE OF THE LID SO LEAVE ENOUGH CLEARANCE AROUND THE SOCKET TO ALLOW SMOOTH ENTRY OF A PLUG.

THE NEXT STEP IS THE SMALL CIRCUIT BOARD. CUT A PIECE OF VERO BOARD AS SHOWN IN THE DIAGRAM AND WITH A SMALL DRILL BIT CUT THE COPPER TRACKS WHERE REQUIRED. SOLDER IN THE 6 BRIDGES AND A 20 PIN IC SOCKET. THERE ARE 8 X 100PF CERAMIC CAPACITORS USED ON THE DATA INPUT LINES.

SOLDER THESE IN PLACE AND THEN USING A SHORT LENGTH OF TINNED WIRE ON THE COPPER SIDE OF THE BOARD SOLDER A LINK FROM THE GROUND LEG OF THE CAPACITORS TO THE VERO BOARD GROUND RAIL. TWO PIECES OF STRIP HEADER SOCKET (8 PIN AND 10 PIN) ARE USED TO CONNECT THE VERO BOARD TO CORRESPONDING PINS ON THE PRINTER INTERFACE BOARD.

CHECK WITH THE DIAGRAM FOR THEIR CORRECT POSITION ON THE VERO BOARD AND SOLDER THEM IN PLACE. NEXT YOU WILL NEED 11 PIECES OF HOOKUP WIRE EACH ONE 80MM IN LENGTH WITH ITS ENDS STRIPPED AND TINNED. SOLDER 10 OF THESE IN PLACE ALONG THE IC SOCKET FROM PIN 1 TO 10 AND THE LAST PIECE AT PIN 19.

NOW TAKING CAREFULL NOTE OF THEIR ORIENTATION, SOLDER EACH LEAD INTO THE 'D' SOCKET. DOUBLE CHECK THE CIRCUIT BOARD THAT THERE IS NO SOLDER BRIDGES ETC. AND IF ALL IS OK INSERT THE 74LS245 IC AND SCREW THE 'D' SOCKET IN PLACE.

THE NEXT STEP IS TO CUT 2 PIECES OF STRIP HEADER, ONE PIECE 10 PINS THE OTHER PIECE 8 PINS. NOT ALL THE PINS ARE REQUIRED SO STUDY THE DIAGRAM CAREFULLY AND CUT THE ONES NOT NEEDED. THE FIRST PIN ON THE 10 PIN STRIP HAS TO BE BENT AT RIGHT-ANGLES. USE A PAIR OF PLIERS TO HOLD THE PLASTIC BODY OF THE STRIP WHILE DOING THIS SO AS TO AVOID THE PIN FROM SNAPPING AWAY FROM THE REST.

TIN THE REMAINING PINS. THE STRIPS NOW HAVE TO BE SOLDERED ONTO THE SOLDER PADS OF THE 74LS373 IC. BEFORE YOU START SOLDERING MAKE SURE THE STRIP WILL FIT OK IN ITS CORRECT POSITION AND NOT CAUSE ANY SHORT CIRCUITS ETC. SOLDER ONLY ONE PIN AT A TIME, MOVING IT IN TILL IT RESTS AGAINST THE LEG OF THE IC. MAKE SURE YOU SOLDER THE STRIPS DOWN THE CORRECT SIDES OF THE 74LS373 SO AS TO MAINTAIN THE CORRECT WIDTH BETWEEN THE STRIPS.

LASTLY A BRIDGE HAS TO BE SOLDERED BETWEEN THE PIN BENT AT RIGHT-ANGLES AND THE PORT SELECT PIN ON THE 74LS138. THERE ARE 2 CIRCUIT VERSIONS FOR THE PRINTER INTERFACE, IF YOUR PARTICULAR ONE HAS A DIFFERENT LAYOUT (WHEN VIEWED FROM THE COPPER SIDE) TO THE ONE DRAWN BELOW, YOU WILL HAVE TO LOCATE THE 74LS138 IC AND USE PIN 12.

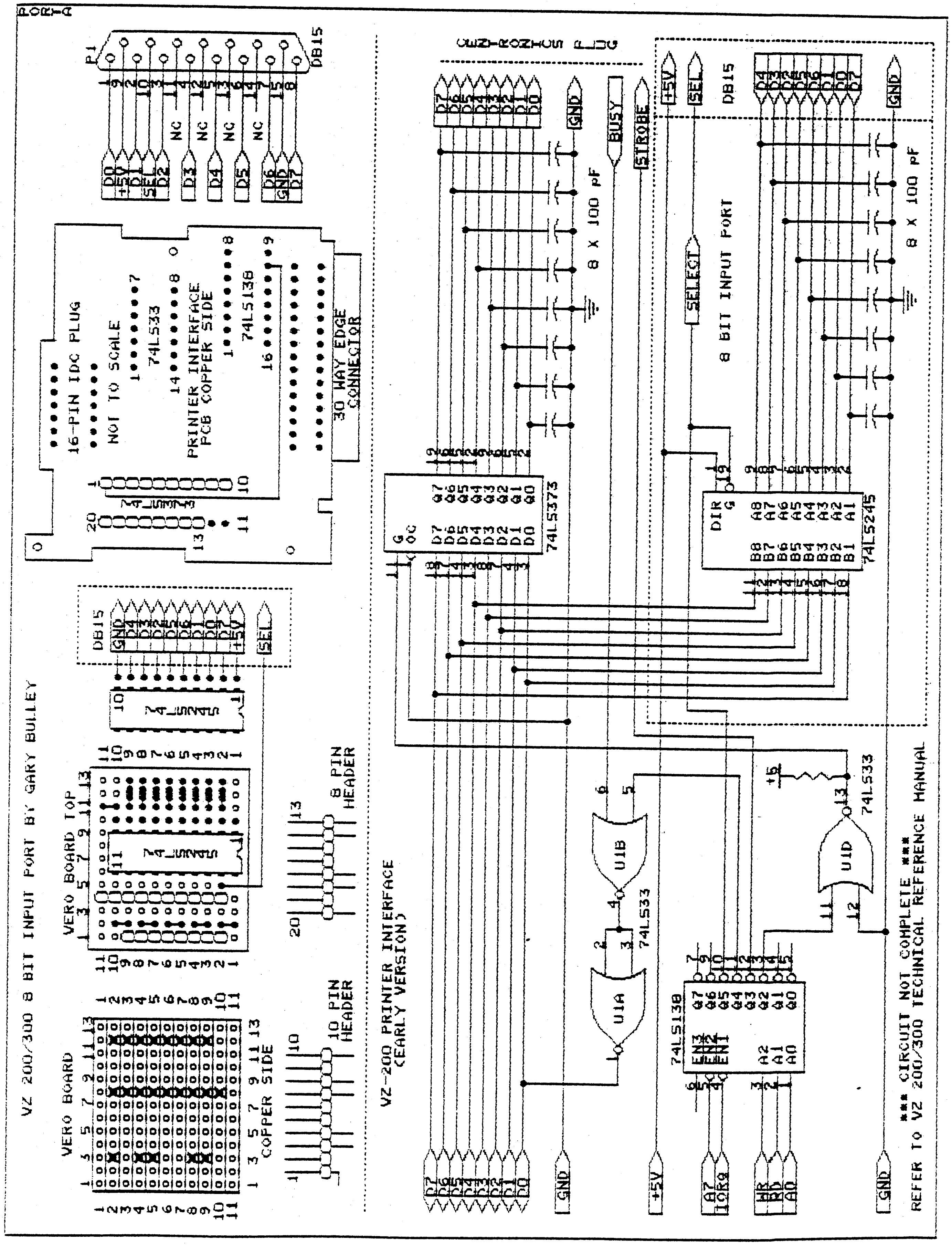
IN THE VERSION DRAWN BELOW PIN 10 IS USED. ONCE THE BRIDGE IS SOLDERED IN PLACE PLUG IN THE VERO BOARD TO THE INTERFACE MODULE AND FOLD THE 11 LEADS TO ALLOW THE COVER TO BE SCREWED INTO PLACE.

TESTING:

START BY CHECKING THAT THE PRINTER INTERFACE STILL WORKS OK WITH THE PRINTER. ENTER AND RUN THE SIMPLE 3 LINE TEST PROGRAM. BECAUSE THERE IS NOTHING PLUGGED INTO THE PORT THE DATA LINES WILL BE FLOATING SO YOU WILL GET A RANDOM NUMBER DISPLAYED ON THE SCREEN. WITH A 4.7K RESISTOR SOLDERED TO A SHORT LENGTH OF WIRE, BRIDGE EACH DATA LINE TO EITHER +5V OR GROUND TO PRODUCE A CORRESPONDING BIT CHANGE IN THE NUMBER DISPLAYED.

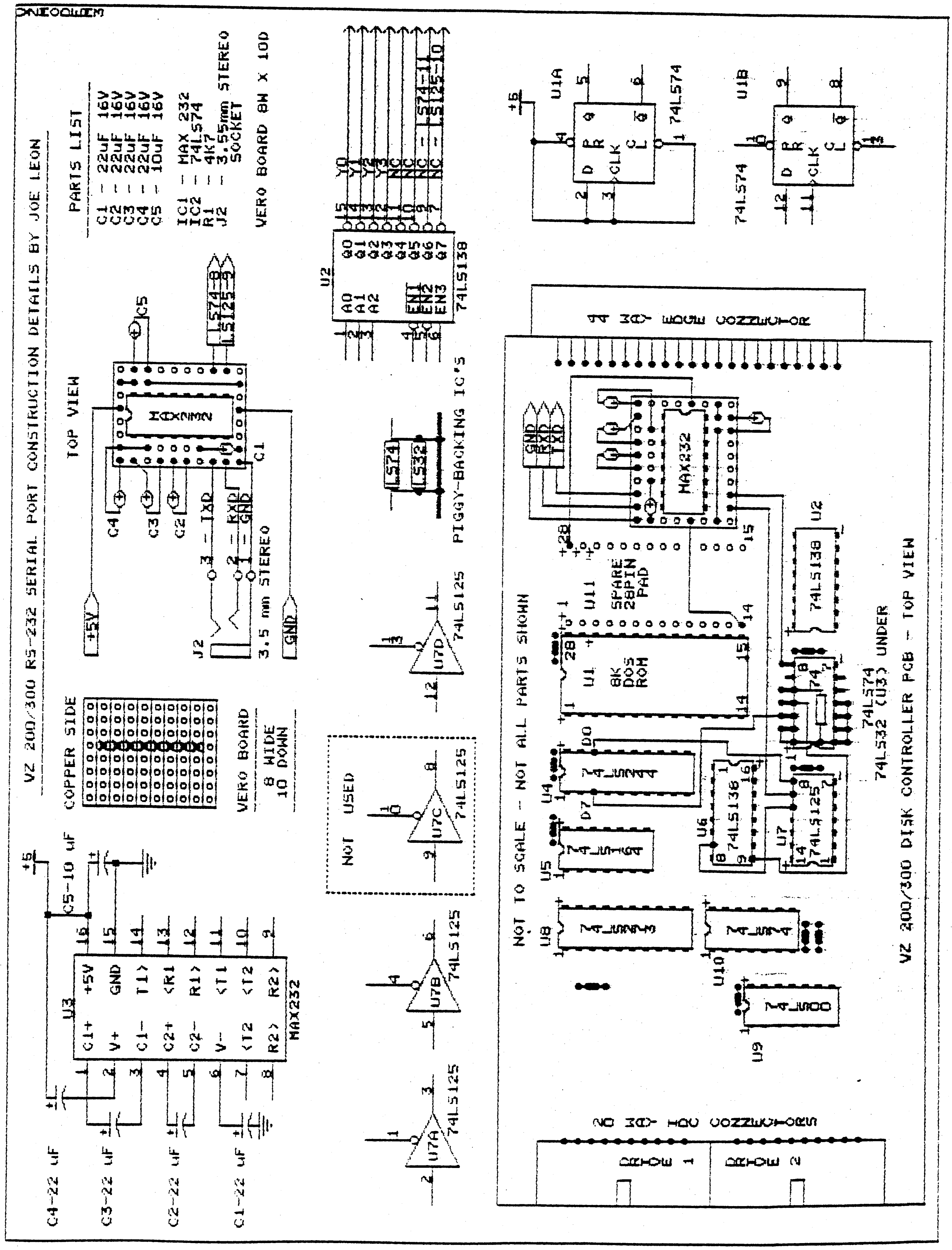
TEST PROGRAM:

```
10 A=INP(1)
20 PRINT A
30 GOTO 10
```


VZ 200/300 8 BIT INPUT PORT BY GARY BULLEY
16-PIN IDC PLUG
NOT TO SCALE
PRINTER INTERFACE PCB COPPER SIDE
30 WAY EDGE CONNECTOR
VERO BOARD TOP
VERO BOARD
COPPER SIDE
8 PIN HEADER
10 PIN HEADER
DB15
74LS33
74LS138
74LS373
74LS245
VZ-200 PRINTER INTERFACE (EARLY VERSION)
8 BIT INPUT PORT
8 X 100 pF
SELECT
BUSY
STROBE
*** CIRCUIT NOT COMPLETE ***
REFER TO VZ 200/300 TECHNICAL REFERENCE MANUAL

VZ SERIAL INTERFACE PART II

CONSTRUCTION DETAILS . . .



CORRECTIONS:

VZ JOURNAL # 29 - THE TXD AND RXD SIGNALS ON DB9 & DB25 CONNECTORS WERE TRANSPOSED ON PAGE 14 WHILE THOSE ON PAGE 15 WERE CORRECT.

2ND SERIAL INTERFACE ON PAGE 14 - ALL SIGNALS LEFT OF DASHED LINE INCLUDING Q6 & Q7 WITH THE EXCEPTION OF +5V MUST GO TO 2ND VZ'S DISK CONTROLLER.

THERE WERE ALSO SOME ERRORS WITH CONSTRUCTION DETAILS THAT CAME WITH THE SOFTWARE.

1) MAX232 CHIP - PIN 7 (TXD) GOES TO PIN 2 OF DB25 CONNECTOR.
   PIN 8 (RXD) GOES TO PIN 3 OF DB25 CONNECTOR.
2) 74LS47 MENTIONED IN THE INSTRUCTIONS AS U3A SHOULD BE 74LS74 AND IS A NEW CHIP. DO NOT CONFUSE IT WITH U10-74LS74 IN THE DISK CONTROLLER.
3) U6-74LS138 - PIN 16 HAS +5V NOT PIN 14 WHICH IS OUTPUT Q1.

CONSTRUCTION DETAILS:

IF YOU ARE BUILDING ONLY SINGLE RS-232 PORT THEN IT CAN ALL FIT INSIDE THE DISK CONTROLLER QUITE EASILY AND ONE LESS IC IS REQUIRED, NAMELY THE 74LS125.

MAX232 PINOUT: IT SHOWS CAPACITOR CONNECTIONS AND THEIR ORIENTATION. BOTH ELECTROLYTIC AND TANTALUM CAPACITORS ARE SUITABLE WITH THE LATTER BEING SMALLER BUT MORE EXPENSIVE. THE CAPACITOR VOLTAGE RATINGS MIGHT NEED EXPLAINING TO SOME CONSTRUCTORS.

HIGHER VOLTAGE RATINGS CAN BE USED BUT NOT LOWER AND YOU MAY FIND IT DIFFICULT TO GET 16V TYPE AND UP TO 35V ARE OK, BUT THE SMALLER THE VOLTAGE RATING, THE SMALLER THE CAPACITOR NORMALLY AND SIZE IS IMPORTANT IN THIS PROJECT. OK TO USE 10UF-22UF FOR C1-C4 AS THE CAPACITY VALUE IS NOT CRITICAL.

VERO BOARD: ONLY A SMALL PIECE IS REQUIRED, 8 HOLES ACROSS AND TEN STRIPS DOWN. CUT 8 TRACKS ON THE VERO BOARD AS INDICATED BY THE X'S. FIT TWO LINK WIRES NEXT. SOLDER THE THREE WIRES FOR J2 FROM THE COPPER SIDE NEXT, AS C1 HAS TO GO ON TOP AND BE BENT OVER.

CAPACITORS: ALL CAPACITORS MUST BE BENT 90 DEG'S TOWARDS THE SIDES JUST CLEARING EDGE BEFORE SOLDERING IN TO REDUCE HEIGHT.

C1—C3 & C5: FIT THE LEADS IN FROM THE TOP AND BEND OVER TOWARDS THE EDGDE AND SOLDER IN.

C4: FIT A BIT OF SLEEVING OVER THE NEGATIVE LEG TO AVOID THE POSSIBILTY OF SHORTING AND BEND THE LEG AS DEPICTED IN THE DIAGRAM AND SOLDER IT IN PLACE.

MAX 232: SOLDER IN MAX232 CHIP WITHOUT A SOCKET AGAIN TO REDUCE HEIGHT. PUT VERO BOARD MODULE NEAR 44 WAY EDGE CONNECTOR TO GET IDEA FOR THE LENGHT OF THE 4 CONNECTING WIRES WHICH YOU SOLDER IN NEXT. AT THIS TIME YOU CAN ALSO SOLDER ON THE 3.5 MM STEREO SOCKET.

74LS74: BEND ALL PINS EXCEPT PIN 7 & 14 AT RIGHT ANGLES AND PLACE IT OVER U3-74LS32 IN DISK CONTROLLER AND SOLDER PINS 7 & 14 OF THE 74LS74 TO IT WHICH SUPPLY GND AND +5V TO THE 74LS74. MAKE SURE PIN 7 OF 74LS74 IS SOLDERED TO PIN 7 OF 74LS32 AND THAT PIN 14 IS SOLDERED TO PIN 14.

WITH A SHORT LENGHT OF BARE WIRE JOIN PINS 1, 2, 3, 4 & 13 TO PIN 14 AS SHOWN ON THE DIAGRAM. SOLDER THE 4K7 RESISTOR ON NEXT AND TRIM THE LEADS. CONNECT THE REMAINING WIRES BETWEN U4, U6, U7 , PIGGY BACKED 74LS74 AND MAX232 MODULE NEXT. IT SHOULD BE EASIER FOLLOWING WIRING DETAILS ON THE DIAGRAM THAN A BLOW BY BLOW DESCRIPTION.

CHECK ALL YOUR WORK FOR SHORTS OR ERRORS ESPECIALLY BETWEEN IC PINS. WRAP MAX232 MODULE IN THIN CARDBOARD TO PREVENT SHORTS AND FIT 3.5 MM STEREO SOCKET IN THE BOTTOM RIGHT ABOUT 3 CM'S FROM THE REAR. AFTER TESTING UNIT OUT AND ALL OK AND IF FITTING RF SHIELD BACK ON THEN THE FRONT OF THE SHIELD WILL HAVE TO BE BENT UP 90 DEG'S TO CLEAR MAX232 MODULE.

TESTING: THIS IS GOING TO BE THE DIFFICULT PART IF YOU HAVEN'T A SECOND VZ WITH DRIVE AND DISK CONTROLLER. IT WILL WORK WITH ANOTHER COMPUTER PROVIDING IT HAS A RS-232 PORT. THE COMMODORE 64 IS NOT SUITABLE AS THE SIGNALS ARE INVERTED. I HAVEN'T BUILT MY UNIT YET, SO I CAN'T ADVISE ON TESTING EXCEPT THAT YOU FOLLOW INSTRUCTIONS SENT WITH THE SOFTWARE.

U7-74LS125: IT HAS FOUR TRISTATE BUFFERS AND ONLY THREE ARE USED BY THE DISK CONTROLLER. THE BLOCK DIAGRAM DEPICTS ALL BUFFERS INCLUDING THE SPARE ONE WHICH WE CAN PRESS INTO SERVICE.

Piggy-backing: THE DIAGRAM SHOWS HOW THE PINS ARE BENT OUT AND CHIP SOLDERED ONTO THE ONE BELOW. IN PRACTICE THE CHIPS WILL BE CLOSER THAN DEPICTED.

U2-74LS138: THE DISK CONTROLLER ONLY USES FOUR OUTPUTS, Q0-Q3 WITH Q4-Q7 BEING SPARE AND PETER AND ANDY HAVE CLEVERLY UTILISED TWO OF THE UNUSED OUTPUTS.

74LS74: FOR A SINGLE RS-232 PORT ONLY THE MAX232 AN 74LS74 CHIPS ARE NEEDED WITH THE UNUSED INPUTS ON THE LATTER TAKEN TO +5V TO PREVENT POSSIBLE OSCILLATION.

3.5 mm STEREO SOCKET: A ROUND METAL TYPE AS SOLD BY D. SMITH IS OK AND IS THE ONE WHICH I'VE CHOSEN FOR MY OWN USE. FILE THE FLANGE DOWN ON ONE SIDE SO IT CAN SIT FLUSH ON THE BOTTOM OF THE CASE. TRY TO GET ONE WITH A NUT AS THEY ARE EASIER TO FIT.

CASES: IF BUILDING YOUR UNIT INTO A CASE THEN I WOULDN'T ADVISE THE ONES FROM D. SMITH AS THEY HAVE INTERNAL RIBBING WHICH MAKE IT DIFFICULT TO MOUNT SOCKETS, SWITCHES, ETC. THE ONES FROM TANDY DON'T SUFFER FROM ABOVE PROBLEM.

USING YOUR RS-232 PORT: PETER AND ANDY HICKMAN HAVE PROVIDED VZ USERS WITH A RS-232 PORT TOGETHER WITH A PROGRAM TO DRIVE IT. AT THIS STAGE I KNOW OF NO OTHER PROGRAM AROUND FOR IT. THE PORT CAN'T BE USED WITH A PRINTER WITH A SERIAL INPUT PORT SIMPLY BECAUSE AT THIS TIME THERE'S NO PRINTER PATCH OR HARDWARE INTERFACE THAT I KNOW OF FOR IT.

IN MY OWN CASE I'LL BE USING IT TO TRANSFER DATA BACK AND FORTH BETWEEN THE VZ AND IBM PC COMPATIBLE WHICH HAS A SPARE RS-232 PORT AND WITH A MODEM WHICH I HOPE TO AQUIRE BEFORE CHRISTMAS. AT OUR LAST CLUB MEETING PETER JONES DEMONSTRATED HIS DUAL VERSION WHICH WILL ALSO BE SHOWN AT THE NEWCASTLE COMPUTER SHOW.

THERE ARE SOME UNDOCUMENTED FUNCTIONS WITH BOTH BASIC AND DOS WHICH ARE HANDY TO KNOW AND WHICH THE INSTRUCTION BOOKS DON'T TELL YOU ABOUT, ESPECIALLY DOS WHICH CAN BE A BIT DANGEROUS AT TIMES.

LIST & LLIST DOT: THE DOT IS AN UNDOCUMENTED EXTENSION OF THE L/LIST COMMAND AND IS A VERY USEFUL FUNCTION.

```
L/LIST.    * L/LISTs LAST LINE THAT RETURN WAS ENTERED.
L/LIST.-   * L/LISTs FROM LAST LINE RETURN PRESSED TO END OF PROGRAM.
L/LIST-.   * L/LISTs FROM START TO LINE THAT RETURN WAS LAST PRESSED.
L/LIST.-X  * L/LISTs FROM LINE RETURN LAST PRESSED TO DESIGNATED LINE
             NUMBER.
L/LISTX-.  * L/LISTs FROM DESIGNATED LINE NUMBER TO LINE THAT RETURN
             WAS LAST PRESSED.
NOTE:        X = LINE NUMBER FROM 1 TO 5 DIGITS LONG, EG: 0 TO 65535
```

IN CASE OF SYNTAX, FUNCTION CODE ERROR, ETC THEN IT WILL LIST THE LINE/S ACCORDING TO THE EXTENSION USED WITH L/LIST DOT.

PRINT OR (?): THE (?) QUESTION MARK CAN BE USED IN PLACE OF PRINT WHEN ENTERING BASIC PROGRAMS, BUT BE CAREFUL. TRY THE FOLLOWING EXAMPLE:

```
10 ?:?:?:?:?:?:?:?:?:?:?:?:?:?:?
:?:?:?:?:?:?:?:?:?:?:?:?:?:?:?:?
```

PRESS RETURN AFTER FILLING BOTH LINES WITH QUESTION MARKS SEPERATED BY COLONS AND THEN ENTER LIST AND PRESS RETURN. THE BASIC INTERPRETER HAS CHANGED THE (?) TO THE PRINT STATEMENT AND YOU NOW HAVE MORE THAN TWO LINES CONTAINING THE WORD PRINT SEPERATED BY COLONS. THERE ARE PROBLEMS AS YOU CAN'T EDIT THE EXTRA LINES AND ONCE YOU PRESS RETURN OVER LINE 10 YOU LOSE EXTRA LINES. IT'S OF DUBIOUS VALUE BUT THE FUNCTION IS THERE FOR THOSE WHO WANT TO USE IT.

REM OR ('): THE (') SINGLE QUOTE CAN BE USED IN PLACE OF THE REM STATEMENT AND IS VERY HANDY IF YOU NEED TO SQUEEZE IN AN EXTRA ONE OR TWO CHARACTERS IN A LINE.

INVERSE TEXT: SOME OF YOU HAVE FOUND PROBLEMS PLACING INVERSE TEXT IN A REM STATEMENT, BUT THERE IS A WAY, EG:

```
1000 REM" MAIN MENU or 1000 '" MAIN MENU
```

IF OPENING QUOTES ARE USED THEN INVERSE TEXT CAN BE ENTERED IN A REM STATEMENT WITHOUT CAUSING A SYNTAX ERROR. NOTE: LINE 10 IS NOT PRINTED IN INVERSE BECAUSE OF WORD PROCESSOR LIMITATIONS.

QUOTE (') & COLON (:): BOTH CAN BE USED TO RESERVE LINES FOR FUTURE USE OR AS ROUTINE DIVIDERS IN YOUR PROGRAMS, EG:

```
1000 : OR 1000 '
```

COMMA (,), COLON (:) with INPUT:

IF YOU GET A REDO? REMARK AFTER TRYING TO ENTER A COMMA OR A COLON IN AN INPUT STATEMENT THEN THERE IS A SIMPLE REMEDY, JUST USE OPENING QUOTES LIKE WE DID WITH INVERSE TEXT IN A REM STATEMENT, EG:

```
ENTER TEXT ?".:,ETC
```

LET: LET FUNCTION IS REDUNTANT AS FAR AS VZ BASIC GOES ALTHOUGH IF ENTERED WILL WORK, JUST FORGET ABOUT IT.

IF -- THEN -- GOTO: THE THEN AND GOTO STATEMENTS CAN BE OMITTED AT TIMES WITH NO PROBLEMS, BUT NOT ALLWAYS AS THE EXAMPLES BELOW SHOW, EG:

```
1000 IF A$="X" THEN GOTO 100
1000 IF A$="X" THEN 100
1000 IF A$="X" , 100
1000 IF A$="X" 100
```

THE FIRST EXAMPLE SHOWS THE NORMAL CONVENTION WHILE IN THE SECOND GOTO WAS OMITTED. IN THE THIRD EXAMPLE A COMMA HAS REPLACED THEN WHILE IN THE FOURTH BOTH THEN AND GOTO WERE OMITTED. THE COMMA IS OF LITTLE VALUE IN THIS APPLICATION BUT IT IS AN UNDOCUMENTED FUNCTION SO IT WAS INCLUDED.

```
1000 IF A$="X" THEN GOSUB 100:GOTO 500
1000 IF A$="X" GOSUB 100:500
1000 IF A$="X" GOSUB 100:GOTO 500
```

THE FIRST LINE IS WHAT WE NORMALLY ENTER WHILE THE SECOND IS SHORTENED VERSION, BUT 500 AFTER THE COLON WILL NOT WORK AS YOU NEED A GOTO OR A GOSUB AND IS A CASE WHERE THEY MUST BE USED. THIRD LINE WILL WORK WITH NO PROBLEMS. GOSUB CANNOT BE LEFT OUT AND I KNOW OF NO OTHER SYMBOL WHICH WILL DO ITS FUNCTION.

COMMA PROBLEMS: THE COMMA CAN CAUSE PROBLEMS WITH RENUMBERING ROUTINES IN SOME EXTENDED BASICS, EG:

```
1000 IF A$="X" THEN GOSUB 100
1000 IF A$="X" , GOSUB 100
1000 IF A$="X" , 100
```

THE RENUMBERING FUNCTION WILL HAVE NO PROBLEM WITH THE FIRST LINE OR THE SECOND LINE BECAUSE THE COMMA IS FOLLOWED BY A GOSUB STATEMENT BUT IN THE THIRD LINE IT WILL NOT RECOGNIZE THE COMMA BECAUSE A NUMBER FOLLOWS AND WILL NOT BE RENUMBERED PROPERLY. IT'S A PECULIARITY OF SOME RENUMBERING ROUTINES.

MODE(X): NOT MANY PERSONS REALISE THAT A VARIABLE CAN BE USED TO SWITCH BETWEEN MODE(0) AND MODE(1). TYPE IN THE DEMONSTRATION PROGRAM BELOW AND TRY IT OUT.

```
010 CLS:X=0:GOSUB 100
020 :
030 A$=INKEY$:A$=INKEY$:IF A$=""30
040 IF A$="X" X=0+ABS(X=0):GOSUB 100
050 GOTO 30
060 :
100 MODE(X)
110 IF X=0 SOUND 10,2:PRINT@107,"PRESS (X)"
120 IF X=1 SOUND 30,2
130 RETURN
```

ALTHOUGH FOUR IF STATEMENTS ARE USED THERE ARE NO CORRESPONDING THEN STATEMENTS AND THE PROGRAM WORKS. LINE 10 DEFINES THE VARIABLE X AS 0 WHILE LINE 100 SWITCHES TO MODE(0) FIRST TIME PROGRAM IS RUN. EVERYTIME YOU PRESS X LINE 40 WILL TOGGLE X BETWEEN 0 AND 1 AND LINE 100 WILL SWITCH THE MODE ACCORDING TO THE VALUE OF X.

DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX
0	00	51	33	102	66	153	99	204	CC
1	01	52	34	103	67	154	9A	205	CD
2	02	53	35	104	68	155	9B	206	CE
3	03	54	36	105	69	156	9C	207	CF
4	04	55	37	106	6A	157	9D	208	D0
5	05	56	38	107	6B	158	9E	209	D1
6	06	57	39	108	6C	159	9F	210	D2
7	07	58	3A	109	6D	160	A0	211	D3
8	08	59	3B	110	6E	161	A1	212	D4
9	09	60	3C	111	6F	162	A2	213	D5
10	0A	61	3D	112	70	163	A3	214	D6
11	0B	62	3E	113	71	164	A4	215	D7
12	0C	63	3F	114	72	165	A5	216	D8
13	0D	64	40	115	73	166	A6	217	D9
14	0E	65	41	116	74	167	A7	218	DA
15	0F	66	42	117	75	168	A8	219	DB
16	10	67	43	118	76	169	A9	220	DC
17	11	68	44	119	77	170	AA	221	DD
18	12	69	45	120	78	171	AB	222	DE
19	13	70	46	121	79	172	AC	223	DF
20	14	71	47	122	7A	173	AD	224	E0
21	15	72	48	123	7B	174	AE	225	E1
22	16	73	49	124	7C	175	AF	226	E2
23	17	74	4A	125	7D	176	B0	227	E3
24	18	75	4B	126	7E	177	B1	228	E4
25	19	76	4C	127	7F	178	B2	229	E5
26	1A	77	4D	128	80	179	B3	230	E6
27	1B	78	4E	129	81	180	B4	231	E7
28	1C	79	4F	130	82	181	B5	232	E8
29	1D	80	50	131	83	182	B6	233	E9
30	1E	81	51	132	84	183	B7	234	EA
31	1F	82	52	133	85	184	B8	235	EB
32	20	83	53	134	86	185	B9	236	EC
33	21	84	54	135	87	186	BA	237	ED
34	22	85	55	136	88	187	BB	238	EE
35	23	86	56	137	89	188	BC	239	EF
36	24	87	57	138	8A	189	BD	240	F0
37	25	88	58	139	8B	190	BE	241	F1
38	26	89	59	140	8C	191	BF	242	F2
39	27	90	5A	141	8D	192	C0	243	F3
40	28	91	5B	142	8E	193	C1	244	F4
41	29	92	5C	143	8F	194	C2	245	F5
42	2A	93	5D	144	90	195	C3	246	F6
43	2B	94	5E	145	91	196	C4	247	F7
44	2C	95	5F	146	92	197	C5	248	F8
45	2D	96	60	147	93	198	C6	249	F9
46	2E	97	61	148	94	199	C7	250	FA
47	2F	98	62	149	95	200	C8	251	FB
48	30	99	63	150	96	201	C9	252	FC
49	31	100	64	151	97	202	CA	253	FD
50	32	101	65	152	98	203	CB	254	FE
51	33	102	66	153	99	204	CC	255	FF

*** NEW — FOR SALE — NEW ***

```
******************************************************************
*                                                                *
*   LOOK !!!! ---  PROGRAMS FOR SALE  ---  ALL NEW !!!!          *
*                                                                *
******************************************************************
```

<1> V Z D I S A S S E M B L E R
##############################

WHAT, ANOTHER DISASSEMBLER? BUT, YOU HAVE ALREADY GOT ONE? THIS ONE IS DIFFERENT!

THIS PROGRAM IS ENTIRELY WRITTEN IN MACHINE CODE. IT ACTUALLY RUNS ABOUT 40 TIMES FASTER THAN D.S.E.'S DISASSEMBLER (OR ANY ONE ELSE'S). IT WILL DISASSEMBLE ANY PROGRAM THAT YOU CAN BLOAD INTO MEMORY. IT WORKS WITH ANY VZ CONFIGURATION. IT DISASSEMBLES EVEN THE 88 EXTRA Z80 OPCODES THAT ZILOG DOESN'T ADMIT TO.

PRICE? ONLY $25.00 - TAPE AND DISK VERIONS AVAILABLE.

PRICE INCLUDES HARDCOPY MANUAL. INTERESTED? YOU MAY PURCHASE THIS PROGRAM FROM PETER HICKMAN, FOR ADDRESS SEE BELOW.

```
******************************************************************
*                                                                *
* BRAND NEW  -  VZ SERIAL INTERFACE PROGRAM  -  BRAND NEW        *
*                                                                *
******************************************************************
```

<2> V Z M O D E M S O F T W A R E
##################################

DID YOU WANT TO TALK TO OTHER COMPUTERS VIA A MODEM? DID YOU BUY THE DSE TERMINAL EPROM, ONLY TO DISCOVER THAT IT ONLY WORKS WITH TAPE. IT ONLY ALLOWS YOU TO PRINT FILES, NOT SAVE THEM OR SEND THEM!

YOUR PROBLEMS ARE SOLVED! THE HICKMAN BROTHERS, PETER AND ANDREW, HAVE A BRAND NEW PROJECT WHICH WILL ALLOW YOU TO SEND, RECEIVE & SAVE FILES VIA A MODEM. IT WORKS WITH DISK!

SALE PRICE $25.00 ONLY

INCLUDED ARE INSTRUCTIONS FOR THE HARDWARE MODIFICATIONS.

A SMALL MODIFICATION IS NEEDED TO YOUR DISK CONTROLLER. YOUR USER GROUP MAY HELP YOU MODIFY YOUR COMPUTER TO USE THIS EXCITING NEW SOFTWARE! IF YOU HAVE THE FUNCTION KEYS MOD AS WELL, THEN YOU WILL BE ABLE TO SEND EXTRA ASCII CHARACTERS SUCH AS:-

{|}~_

THE MANUAL IS SUPPLIED ON DISK FOR YOU TO PRINT OUT WITH YOUR DISK VERSION OF E & F WORDPROCESSOR. IF YOU DO NOT OWN AN E & F WORDPROCESSOR PROGRAM, PLEASE ENCLOSE ANOTHER $5.00 (TOTAL $30.00) FOR PHOTOCOPYING AND POSTAGE OF THE MANUAL.

FOR PURCHASE OR MORE INFORMATION CONTACT:-
PETER HICKMAN P.O. BOX 8, WERRINGTON N.S.W. 2747.

CONTRIBUTIONS TO THE HUNTER VALLEY VZ JOURNAL :-

IF YOU ARE THINKING OF CONTRIBUTING TO THE JOURNAL THE PREFERED FORMAT IS BASIC LISTINGS, WORD PROCESSOR OR SOURCE CODE FILES ON TAPE OR DISK. FILES FROM THE FOLLOWING WORD PROCESSORS CAN BE ACCEPTED :-

E & F TAPE OR DISK PATCH 3.1-3.3, WORDPRO CARTRIDGE, WORDPRO PATCH, MOST SOURCE CODE FILES AND ALL QUICKWRITE WORD PROCESSOR FILES.

WANTED TO BUY ---------------------

64K RAM PACKS: CONTACT JOE LEON
22 DRURY STREET WALLSEND NSW 2287 --- PHONE (049) 51 2756

CLUB MEETINGS * ALL WELCOME *

FIRST FRIDAY OF MONTH - NO MEETING IN JANUARY 1990

VENUE - JESMOND NEIGHBOURHOOD CENTRE MORDUE PARADE JESMOND
(REAR STOCKLAND MALL - BIG W)

SEPTEMBER 7 - COMPUTER SHOW WORKSHOP II
OCTOBER 5 - TO BE NOTIFIED AT CLUB MEETING

MACHINE CODE & ASSEMBLY CONTINUED (MONTHLY)

FUTURE DEMONSTRATIONS -

EPROM PROGRAMMER & ERASER, AUCTION NIGHT - USING THE VZ, RITTY, ETC. IF YOU HAVE ANY IDEAS FOR A DEMONSTRATION OR A SUBJECT THEN PLEASE LET YOUR COMMITTEE KNOW.

CLUB COMMITTEE & SUBSCRIPTIONS -

PRESIDENT --------- ROSS WOODS --- (049) 71 2843
SECRETARY/EDITOR -- JOE LEON ----- (049) 51 2756
TREASURER --------- GARY BULLEY -- (049) 54 7561
COMMITTEE MEMBERS - COLIN BRIDGE - PETER JONES

SUBSCRIPTION TO - AUST. - 6 MONTHS $11.00 - 12 MONTHS $21.00
H.V.VZ.JOURNAL - N. Z. - 6 MONTHS $13.00 - 12 MONTHS $26.00

HUNTER VALLEY VZ USERS' GROUP - PO BOX 161 JESMOND 2299
NEW SOUTH WALES AUSTRALIA

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WAVZ - WESTERN AUSTRALIA VZ USER GROUP
GRAEME BYWATER P O BOX 388 MORLEY W A 6062

BRISBANE VZ USERS WORKSHOP - C/O 63 TINGALPA ST. WYNUM WEST 4178
SOFTWARE FOR SALE - DISK MENU

SAPPHIRE PRODUCTIONS - VZ DISK MAGAZINE - $20.00 PER ANUM
CONTACT JASON OAKLEY PO BOX 600 TAREE NSW 2430

NOTE :- WHEN WRITING TO ANY ABOVE OR H.V.VZ. USERS' GROUP FOR INFORMATION PLEASE ENCLOSE A S.S.A.E. OR NZ 2 INT. REPLY COUPONS.

FOR SALE E & F W.P.PATCH 3.3   30/20

PATCH 3.3 WRITTEN BY DAVE MITCHELL WILL CONVERT YOUR E & F TAPE WORD PROCESSOR FOR FULL DISK USE WHILE RETAINING ALL ORIGINAL FUNCTIONS. BELOW ARE ADDED DISK COMMANDS & FUNCTIONS :-

LOAD, SAVE, ERASE, RENAME, DIRECTORY, INITIALIZE, UPDATE, DRIVE 1 & 2, SHIFTLOCK & IMBEDDED PRINTER CONTROL CODES PLUS CTRL+P WHICH BYPASSES PRINT MENU AND PRINTS TO SCREEN OR PRINTER. A ROUTINE IS ALSO PROVIDED TO CONVERT YOUR BASIC PROGRAM OR SOURCE CODE FILES INTO WORD PROCESSOR FILES.

PATCH 3.3 HAS PROVISION FOR IMBEDDING PRINTER CONTROL CODES IN TEXT AND FAST SAVING AND LOADING OF TEXT DATA TO AND FROM DISK USING BLOCK SAVE/LOAD TECHNIQUES. PRINTER CONTROL CODES CAN BE SAVED TO TAPE OR DISK.

BSTWP.F - THIS UTILITY PROVIDED WITH PATCH 3.3 WILL CONVERT BASIC PROGRAMS AND ED/ASS. SOURCE CODE FILES INTO WORD PROCESSOR FILES.

SYSTEM REQUIREMENTS - VZ 300 + 16K RAM PACK - VZ 200 + 26K

PATCH 3.3 IS COPYRIGHT TO AND ONLY AVAILABLE FROM :-
HUNTER VALLEY VZ USERS' GROUP P.O.BOX 161 JESMOND 2299
N.S.W. AUSTRALIA - PHONE JOE LEON (049) 51 2756

PRICE - AUS/NZ AU$20.00 - UPDATE - AUS-$10.00 - NZ-AU$11.00.
UPDATING AVAILABLE ONLY TO PREVIOUS PURCHASERS OF PATCHES.

FOR MORE INFORMATION WRITE TO H.V.VZ.U.G. ENCLOSING A SSAE.

EXTENDED DOS V1.3 - $15.00

UPDATED VERSION WITH EXTRA COMMANDS ADDED :-

OLD COMMANDS - MERGE, DIRA, LDIRA, DIRB, LDIRB, OLD, OLD., DEC, HEX, STATUSA AND LSTATUSA. STATUSA AND LSTATUSA ALSO WORKS WITH VERSION 1.0 DOS.

NEW COMMANDS :-

- MENU - LOADS AND RUNS BINARY OR TEXT MENU PROGRAM FROM DISK.
- CODE - SIMPLIFIES USING PRINTER CONTROL CODES DIRECTLY OR FROM WITHIN A PROGRAM.
- LTAB - IS FOR SETTING OF LEFT MARGIN.
- MOVE - MOVES BASIC FILE FROM DISK TO CHOSEN MEMORY ADDRESS.
- UPD - ERASES OLD FILE AND SAVES WITH SAME FILE NAME.

MENU/FILE COPIER - $15.00

THIS UTILITY WILL READ YOUR DISK DIRECTORY AND PRESENT YOU WITH SEVERAL OPTIONS. USING THE CURSOR YOU CAN RUN/BRUN ANY PROGRAM OR SELECT FILE COPY, REN, ERASE, DRIVE 1 OR 2, ETC. BESIDES COPYING TEXT AND BINARY FILES ALL OTHER FILES CAN BE COPIED AS WELL EXEPT FOR DATA FILES.

FOR PURCHASE OR INFORMATION CONTACT DAVE MITCHELL - (079) 27 8519
24 ELPHINSTONE ST. NORTH ROCKHAMPTON QUEENSLAND 4701

FOR INFORMATION OR DEMONSTRATION IN NEWCASTLE AREA CONTACT :-
JOE LEON - (049) 51 2756 - 22 DRURY STREET WALLSEND NSW 2287